

WHAT IS CLAIMED IS:

1. A method for fabricating a collimate and post
diffuse type liquid crystal cell, comprising the steps of:
5 providing a liquid crystal cell having a first
substrate, and a second substrate attached to the first
substrate, the first substrate having a same thickness as
the second substrate;
lapping the first substrate at a first rate;
concurrently lapping the second substrate with the
lapping of the first substrate, the lapping of the second
substrate including a second rate different from the first
rate, such that the first substrate and the second substrate
are thinned to different thicknesses;
polishing the first and second substrates; and
providing the thinner of the first and second
substrates on a viewer side of the collimate and post
diffuse type liquid crystal cell to reduce depixelization.

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20 2. The method as recited in claim 1, wherein the
first substrate includes a color filter substrate and the
first rate is greater than the second rate.

3. The method as recited in claim 1, wherein the step
of lapping the first substrate includes the step of

providing an abrasive material on a plate and rotating the plate to lap the first substrate.

4. The method as recited in claim 1, wherein the step of concurrently lapping the second substrate includes the step of providing an abrasive material on a plate and rotating the plate to lap the second substrate.

5. The method as recited in claim 1, wherein the same thickness includes 0.7 mm.

10 6. The method as recited in claim 5, wherein the different thicknesses include 0.4 mm and 0.6 mm.

15 7. The method as recited in claim 1, wherein the step of providing the thinner of the first and second substrates includes the step of providing a depixelization ratio of less than about 1.6.

20 8. The method as recited in claim 1, wherein the step of polishing is performed at a same polish rate for the first and second substrates.

9. A method for fabricating a collimate and post diffuse liquid crystal cell, comprising the steps of:

5 providing a liquid crystal cell having a first substrate, and a second substrate attached to the first substrate, the first substrate having a same thickness as the second substrate;

securing the liquid crystal cell;

lapping the first substrate at a first rate by contacting a first rotating plate with the first substrate;

10 concurrently lapping the second substrate at a second rate by contacting a second rotating plate with the second substrate wherein the second rate is different from the first rate to provide the first substrate and the second substrate with different thicknesses;

polishing the first and second substrates; and

providing the thinner of the first and second substrates on a viewer side of the collimate and post diffuse type liquid crystal cell to reduce depixelization.

10. The method as recited in claim 9, wherein the first substrate includes a color filter substrate and the first rate is greater than the second rate.

11. The method as recited in claim 9, wherein the step of lapping the first substrate includes the step of providing an abrasive material on the first plate.

5 12. The method as recited in claim 9, wherein the step of concurrently lapping the second substrate includes the step of providing an abrasive material on the second plate.

10 13. The method as recited in claim 9, wherein the same thickness includes 0.7 mm.

14. The method as recited in claim 13, wherein the different thicknesses include 0.4 mm and 0.6 mm.

15. The method as recited in claim 9, wherein the step of providing the thinner of the first and second substrates includes the step of providing a depixelization ratio of less than about 1.6.

20 16. The method as recited in claim 9, wherein the step of polishing is performed at a same polish rate for the first and second substrates.

17. A collimate and post diffuse type display device, comprising:

a color filter substrate;

5 a thin film transistor array substrate coupled to and spaced apart from the color filter substrate to form a gap;

a liquid crystal layer disposed in the gap between the color filter substrate and the thin film transistor substrate; and

10 the color filter substrate including a thickness which is less than a thickness of the thin film transistor array substrate to provide a depixelization ratio of less than about 1.6.

15 18. The display device as recited in claim 17, further comprising a diffuser attached to the color filter substrate.

20 19. The display device as recited in claim 17, wherein the color filter substrate thickness is about 0.4 mm.

20 20. The display device as recited in claim 19, wherein the thin film transistor array substrate thickness is about 0.6 mm.